CLAIMS

1. A pair of pneumatic tires (1, 101) comprising a front tire (1) and a rear tire (101) to be mounted, respectively, on a front wheel and on a rear wheel of a motorcycle, each of said front (1) and rear (101) tires comprising a tread band (12) provided with a plurality of grooves (13, 14, 16, 18, 114, 116),

wherein the tread band (12) of the front tire (1) comprises:

a) at least one circumferential groove (13) extending at the equatorial plane (X-X) of the front tire (1) within a central zone (E) extending astride said equatorial plane (X-X);

b) a plurality of transversal grooves (14) having an axially inner end (14a) lying within said central zone (E) of the tread band (12) and alternately extending from said central zone (E) towards axially opposite shoulder zones (F, G) of the tread band external to said central zone (E), at least some of said transversal grooves being connected to said at least one circumferential groove (13);

and wherein the tread band (12) of the rear tire (101) comprises an area defining a substantially null sea/land ratio within a central zone (E) of the tread band (12) extending astride the equatorial plane (X-X) of the rear tire (101) and having a width of from about 5% to about 30% of the axial development of the tread band (12).

2. A pair of pneumatic tires (1, 101) according to claim 1, wherein the central zone (E) of the tread band (12) of the front tire (1) has a width of from about 10% to about 35% of the axial development of the tread band (12).

3. A pair of pneumatic tires (1, 101) according to claims 1 or 2, wherein the central zone (E) of the tread band (12) of the front tire (1) has a sea/land ratio between about 15% and about 30%.

4. A pair of pneumatic tires (1, 101) according to claim 1, wherein the tread band (12) of the front tire (1) further comprises axially opposite intermediate side zones (C, D) lying between the central zone (E) and said shoulder zones (F, G), each of said intermediate side zones (C, D) having a width of from about 15% to about 35% of the axial development of the tread band (12) and a sea/land ratio between about 15% and about 35%.

5. A pair of pneumatic tires (1, 101) according to claim 1, wherein the transversal grooves (14) formed in the tread band (12) of the front tire (1) are substantially curvilinear.

6 A pair of pneumatic tires (1, 101) according to claim 1 or 5, wherein said transversal grooves (14) formed in the tread band (12) of the front tire (1) define with the running direction (RD) of the front tire (1) an angle (α) of from about 30° to about 60°.

7. A pair of pneumatic tires (1, 101) according to claim 5, wherein the transversal grooves (14) formed in the tread band (12) of the front tire (1) have a curvature radius (R1) of from about 40 to about 200 mm as measured from a curvature center (CC) positioned along a circumferential line (L) bisecting each of the half portions of the tread band (12) defined by the equatorial plane (X-X) of the front tire (1).

8 A pair of pneumatic tires (1, 101) according to claim 1, wherein the transversal grooves (14) formed in the tread band (12) of the front tire (1) are circumferentially distributed along the tread band (12) in axially opposite groups comprising at least two transversal grooves (14).

9. A pair of pneumatic tires (1, 101) according to claim 8, wherein said axially opposite groups of transversal grooves (14) are circumferentially staggered.

10. A pair of pneumatic tires (1, 101) according to claim 8, wherein the front tire (1) further comprises at least one transversal groove (16) formed in the tread band (12) on either side of the equatorial plane (X-X) of the tire (1) between said axially opposite and circumferentially staggered groups of transversal grooves (14).

11. A pair of pneumatic tires (1, 101) according to anyone of the preceding claims, wherein the transversal grooves (14, 16) formed in the tread band (12) of the front tire (1) are substantially parallel to one another.

12. A pair of pneumatic tires (1, 101) according to claim 1, wherein said at least one circumferential groove (13) formed in the tread band (12) of the front tire (1) axially crosses the equatorial plane (X-X) of the front tire (1) in a substantially winding fashion.

13. A pair of pneumatic tires (1, 101) according to claim 12, wherein said at least one circumferential groove (13) comprises a plurality of curvilinear segments (13a, 13b) having respective circumferentially staggered centers of curvature (CD) positioned at opposite sides of the equatorial plane (X-X) of the front tire (1).

14. A pair of pneumatic tires (1, 101) according to claim 13, wherein said curvilinear segments (13a, 13b) have a curvature radius (R2) of from about 40 to about 300 mm.

15. A pair of pneumatic tires (1, 101) according to claim 1, wherein the rear tire (101) has a curvature ratio lower than the front tire (1).

16. A pair of pneumatic tires (1, 101) according to claim 1, wherein the tread band (12) of the rear tire (101) comprises a plurality of transversal grooves (114) alternately extending from the central zone (E) towards axially opposite shoulder zones (F, G) external to said central zone (E).

17. A pair of pneumatic tires (1, 101) according to claim 16, wherein the tread band (12) of the rear tire (101) further comprises axially opposite intermediate side zones (C, D) lying between the central zone (E) and said shoulder zones (F, G) of the tread band (12), each of said intermediate side zones (C, D) having a width of from about 15% to 35% of the axial development of the tread band (12) and a sea/land ratio between about 10% and about 30%.

18. A pair of pneumatic tires (1, 101) according to claim 16, wherein the transversal grooves (114) formed in the tread band (12) of the rear tire (101) are substantially curvilinear.

19. A pair of pneumatic tires (1, 101) according to claim 16, wherein said transversal grooves (114) formed in the tread band (12) of the rear tire (101) form with the running direction of the rear tire (101) an angle (β) of from about 30° to about 60°.

20. A pair of pneumatic tires (1, 101) according to claim 16, wherein the transversal grooves (114) formed in the tread band (12) of the rear tire (101) have a curvature radius (R1') of from about 60 to about 240 mm as measured from a curvature center (CC') positioned along a circumferential line (L') bisecting each of the half portions of the tread band (12) defined by the equatorial plane (X-X) of the rear tire (101).

21. A pair of pneumatic tires (1, 101) according to claim 16, wherein the transversal grooves (114) are circumferentially distributed along the tread band (12) of the rear tire (101) in axially opposite groups comprising at least two transversal grooves (114).

22. A pair of pneumatic tires (1, 101) according to claim 21, wherein said axially opposite groups of transversal grooves (114) are circumferentially staggered.

23. A pair of pneumatic tires (1, 101) according to claim 21, wherein the rear tire (101) further comprises at least one transversal groove (116) formed in the tread band (12) on either side of the equatorial plane (X-X) of the tire (101) between said axially opposite and circumferentially staggered groups of transversal grooves (114).

24. A pair of pneumatic tires (1, 101) according to anyone of claims 16-23, wherein the transversal grooves (114, 116) formed in the tread band (12) of the rear tire (101) are substantially parallel to one another.

25. A pair of pneumatic tires (1, 101) according to anyone of claims 16-24, wherein at least some of the transversal grooves (114) formed in the tread band (12) of the rear tire (101) are circumferentially interconnected by bridging grooves (18).

26. A pair of pneumatic tires (1, 101) according to anyone of claims 16-25, wherein at least some of the transversal grooves (114, 116) formed in the tread band (12) of the rear tire (101) are provided with a tapered end portion (114a, 116a, 116b) having a width progressively decreasing towards the equatorial plane (X-X) of the rear tire (101).

27. A motorcycle equipped with a front tire (1) and a rear tire (101) mounted, respectively, on a front wheel and on a rear wheel thereof, wherein said front (1) and rear (101) tires are according to anyone of claims 1-26.

28. A method of improving the performance on both wet and dry ground of a motorcycle equipped with a front tire (1) and a rear tire (101) mounted, respectively, on a front wheel and on a rear wheel thereof, each of said front (1) and rear (101) tires comprising a tread band (12) provided with a plurality of grooves (14, 16, 18, 114, 116), said method comprising the steps of:

a) enhancing the water draining capacity of the front tire (1) under its ground contacting area within a central zone (E) extending astride the equatorial plane (X-X) of the front tire (1);

b) enhancing the traction capacity of the rear tire (101) by providing a substantially null sea/land ratio within a central zone (E) of the tread band (12) extending astride the equatorial plane (X-X) of the rear tire (101).

29. A method according to claim 28, wherein said step a) is accomplished by providing the front tire (1) with a plurality of transversal grooves (14) having an axially inner end lying within said central zone (E) of the tread band (12) of the front tire (1) and

alternately extending from said central zone (E) towards axially opposite shoulder zones (F, G) of the tread band (12) external to said central zone (E) of the front tire (1).

30. A method according to anyone of claims 28 or 29, wherein said step a) is accomplished by providing a sea/land ratio between about 15% and about 30% within a central zone (E) of the tread band (12) of the front tire (1) having a width of from about 10% to about 35% of the axial development of said tread band (12).

31. A method according to anyone of claims 28 or 29, wherein said step a) is accomplished by providing at least one circumferential groove (13) extending at the equatorial plane (X-X) of the front tire (1).

32. A method according to claim 31, wherein at least some of said transversal grooves (14) are connected to said at least one circumferential groove (13) extending at the equatorial plane (X-X) of the front tire (1).

33. A method according to claim 28, comprising the step of further enhancing the water draining capacity of the front tire (1) by providing a plurality of transversal grooves (14, 16) defining a sea/land ratio between about 15% and about 35% within axially opposite intermediate side zones (C, D) lying between the central zone (E) and said shoulder zones (F, G) of the tread band (12), each of said intermediate side zones (C, D) having a width of from about 15% to about 35% of the axial development of the tread band (12) of the front tire (1).

34. A method according to claim 33, wherein said transversal grooves (14, 16) form with the running direction (RD) of the front tire (1) an angle (α) of from about 30° to about 60°.

35. A method according to claim 28, further comprising the step of enhancing the water draining capacity of the rear tire (101) by providing in its tread band (12) a plurality of transversal grooves (114) alternately extending from the central zone (E) towards axially opposite shoulder zones (F, G) external to said central zone (E) of the rear tire (101).

36. A method according to claim 35, wherein said plurality of transversal grooves (114) formed in the tread band (12) of the rear tire (101) define a sea/land ratio between about 10% and about 30% within axially opposite intermediate side zones (C, D) lying between the central zone (E) and said shoulder zones (F, G) of the tread band (12) of the rear tire (101), each of said intermediate side zones (C, D) having a width of from about 15% to about 35% of the axial development of the tread band (12) of the rear tire (101).

37. A method according to anyone of claims 35 or 36, wherein said transversal grooves (114) formed in the tread band (12) of the rear tire (101) define with the running direction (RD') of the rear tire (101) an angle (β) of from about 30° to about 60°.